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ABSTRACT

As a boy, Thomas Edison exhibited many of the traits commonly associated with gifted students that differentiate them from their peers. Gifted and talented students: (1) are original thinkers; (2) are at ease in pondering the unusual; (3) can tolerate ambiguity; (4) are not frustrated by lack of closure; (5) have powerful imaginations; (6) display self-confidence and optimism; (7) enjoy being alone; (8) display a sense of humor; (9) have well-developed verbal processes; and (10) can quickly span the concrete, symbolic, and abstract phases of acquiring knowledge. The capabilities of the microcomputer appear to be especially suited to this population. Microcomputers can respond to the independent nature of these students, provide opportunities to develop cognitive skills, and permit the student to go directly to abstract levels. As a multisensory tool, the microcomputer corresponds to what is known about good learning sequences. Despite its potential, a niche for the microcomputer has not been found by educators. However, it is evident that they can be an effective tool for the gifted and talented. (DC)

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by David T. Uslan

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THE GIFTED, THE TALENTED AND THE MICROCOMPUTER

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***Ed. Note:** In many states, Special Education includes not only the handicapped but the gifted and talented as well. This latter classification, where it occurs, is not based so much on logic as on the fact that the needs of the gifted and talented are unquestionably a special educational issue, a special political issue, and a special funding issue.*

Because of the inclusion of the gifted and talented in special education in most states, The Catalyst will inaugurate a series on their activities as related to microcomputers, starting with this issue. We have asked Dr. Uslan to begin the series with some thought-provoking ideas on the subject, and in future editions we will welcome contributions from our readers.

Consider one of the world's greatest inventors, Thomas Alva Edison. He was identified by a physician as having functional brain problems because he had an unusually large head. In school, many teachers were driven to exhaustion by Thomas's repeated questioning and challenging of their statements. There was some consensus among his teachers that Tom Edison asked "stupid questions" and tended to impede class progress. A series of such events led Thomas's mother, a former teacher herself, to withdraw him from school and instruct him at home.

When Thomas was thirteen, a freight car worker grabbed him by both ears and lifted him into a baggage car, and, as Thomas said later, "with a snap rendered me deaf." If Thomas Alva Edison were a student today, his deafness, coupled with an unusually large head, the tendency to be a bother to his teachers, and a mother who was less than cooperative with the school, might well combine to require an extensive IEP planning meeting. Delineating goals and objectives would no doubt be a challenging task, and Thomas's mother might well be inclined to have an attorney present.

While Edison himself is credited with saying, "Genius is two percent inspiration and ninety-eight percent perspiration," it seems that such a humble statement does not completely explain why he differed from his peers. We are not certain what all these differences were, yet there seems to be an uncanny similarity between some of the statements made about this inventive man and some of the characteristics currently regarded as reflective of the gifted and talented student. Several biographers noted that Thomas was "...strongly independent...tended to follow his own ideas...loved practical jokes which occasionally backfired on him...never really had any close friends because his work appeared to be his greatest joy and companion..."

Browsing through the current literature and research on gifted and talented students in the United States does not reward one with a clear message from the experts as to: 1) how such students might be clearly identified; 2) what traits they have in common; 3) how they should be responded to in school; 4) if they really need special help; or 5) what their parents should do to guide them. Indeed, the most detailed information on gifted and talented students seems to dwell on using intelligence or other tests to identify them, with lengthy statistical arguments as to how such scores can be mathematically manipulated.

The following is a highly speculative listing of characteristics that tend to differentiate gifted and talented students from their peers, based not so much on the literature as on the observations of the writer. (The speculative quality cannot be overemphasized, since no such list was actually located in the literature.)

1) They are original thinkers who continually question the world around them and tend to follow their own ideas.
2) They are at ease in pondering the unusual, the unexplainable.
3) They can tolerate ambiguity and complexity to a greater degree than their peers.
4) They are not frustrated by a lack of closure on a subject.
5) They have powerful and vivid imaginations on a wide array of topics.
6) They tend to display a high degree of self-confidence and are generally optimistic, outgoing individuals.
7) They may enjoy being alone, and yet are not lonely. Like Edison, their interests are often their greatest rewards and companions.
8) They display an elaborate sense of humor, which frequently is neither understood nor tolerated by their peers; similarly, they may hide their abilities in order to be like everyone else.

9) Their verbal processes (reading, speaking, writing) are well-developed, as attested by high scores on intelligence tests.
10) In most fields of learning, they can quickly span the three phases of acquiring knowledge--the concrete, the symbolic, and the abstract. Unlike their peers, who might require many concrete examples to understand a concept, the gifted may immediately grasp the concept and function directly at the abstract level.

Despite the previous listing which reflects a high degree of self-confidence among the gifted group, they comprise about ten percent of the total school dropout population. There are indications that their intellectual and creative abilities may render them unapproachable to their peers. Emotional problems are no less a threat to their well-being than to the "normal" population.

One wonders, then, what role the microcomputer might play with gifted and talented students, both in school and at home. Obviously, the microcomputer is not a panacea; yet there would appear to be compelling reasons to explore a more organized utilization of the microcomputer with this population than currently exists.

First of all, the microcomputer can respond to the independent nature of these students. The microcomputer is a highly individualized, personal communicator. The operator is in control and the microcomputer, in a sense, belongs to the operator.

Second, the microcomputer provides opportunities to analyze, inquire, synthesize and seek alternative solutions. The current lack of high-quality courseware, with its ambiguity and lack of closure on a given topic, corresponds well with the abilities of the gifted and talented to handle the incomplete or unexplained.

Third, the microcomputer provides the capabilities, through branching techniques of software, to circumvent the concrete or symbolic explanations on the viewing screen, permitting the student to go directly to abstract stages or renditions. Tedious and boring repetitions can be quickly circumvented if the microcomputer operator so chooses.

It is clear that the microcomputer functions well as a vehicle for individualizing instruction, with reinforcement of ideas and skills an intrinsic mechanism. The microcomputer never tires, and one may leave a program on the screen for hours or days, in a sense in a holding pattern, for eventual use by the student.

The microcomputer is also inherently multisensory. The reinforcement of auditory and visual senses through color, voice input, and kinesthetic manipulation of information on the viewing screen corresponds with what is known about good learning sequences. The microcomputer has impinged upon nearly every field of endeavor, from art and music to the most experimental scientific areas. The addition of a modem permits the microcomputer user to access bibliographic data bases to retrieve current research on most topics. In the future, it is difficult to estimate what impact the orbiting satellite may have on learning and research when it becomes easily and economically accessible to computer users.

With all its potential, educators have not yet found an exact niche for the microcomputer. On the one hand there is a tendency to oversell its benefits (it has been said that there are as many microcomputer commercials on TV as there are ads for beer); on the other hand, computers have been accused of dehumanizing learning and making students the slaves of technology. No doubt the truth has yet to be fully revealed. But one quality is evident: thanks to its versatility, the computer cuts across the instructional, political, and financial barriers that have arisen between special education, general education, and the gifted--wherever they may be included. This being the case, the microcomputer may prove to be not only a valuable instructional tool but a path away from the discomfort and alienation sometimes experienced by the gifted and talented in our educational system.

We would be particularly interested in hearing about our readers' experiences with gifted children working on microcomputers. Write to us at Western Center or call us at (415) 326-6997 or (800) 824-2222 x17 and leave a message. We'll return your call as promptly as possible. We reserve the right to edit all contributions.